





MISCELLANEOUS PAPER C-76-6

SELECTED BIBLIOGRAPHY ON FIBER-REINFORCED CEMENT AND CONCRETE

Ьу

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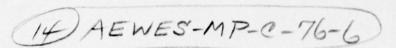
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PREFACE

This bibliography was prepared as a part of a study on the "Identification of Candidate Zero Maintenance Paving Materials" being conducted at the Concrete Laboratory, U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi, for the Federal Highway Administration, Washington, D. C.

Funds for the publication of this bibliography were provided from those made available for operation of the Concrete Technology Information Analysis Center (CTIAC). This is CTIAC Report No. 21. The report was prepared by Mr. G. C. Hoff, Chief, Materials Properties Branch of the Concrete Laboratory, WES, under the general supervision of Messrs. Bryant Mather, Chief, Concrete Laboratory, and J. M. Scanlon, Chief, Engineering Mechanics Division. The majority of the references were gathered and documented by Ms. C. M. Fontenot and Mr. J. G. Tom.

Directors of WES during the preparation and publication of this bibliography were COL G. H. Hilt, CE, and COL J. L. Cannon, CE. Technical Director was Mr. F. R. Brown.

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SELECTED BIBLIOGRAPHY ON FIBER-REINFORCED CEMENT AND CONCRETE

INTRODUCTION

The concept of improving the strength of materials weak in tension by the addition of a reinforcing element has been known to man for thousands of years. Clay pots strengthened by asbestos fibers have been found dating back 4500 years. It is only within the last two decades, however, that very many serious attempts have been made to develop and apply a composite materials approach to building materials. Patents on the use of reinforcing elements in cement matrices exist as early as 1874^{57} (by Berard and Chappellett). Porter, 450 in 1910, envisaged a structural concrete reinforced by the inclusion of short pieces of steel. Since those times, much has been written and said about the reinforcing of cements, mortars, and concretes using a variety of different types, sizes, and configurations of fibers. Considered for use have been asbestos, glass, carbon, steel, plastics, naturally occurring organic, and other fibers.

The following bibliography is a listing of 660 references pertaining solely to fiber reinforcement of cement and gypsum matrices, mortars, and concretes. The references were compiled from publications available directly to the authors and from bibliographies existing in other published works on the subject. Attempts were made to provide as much information as possible for each reference although in some instances, where the reference was obtained from another author's bibliography, the information needed to make the reference 100 percent complete could not be obtained. In general, papers solely on the theory of fiber reinforcement and composite materials that did not explicitly include fiber reinforcement of cements and concretes were not listed. The authors appreciate the fact that other references on the subject may have been omitted but offer these as a starting point for a future complete bibliography.

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